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July 9, 2021

Mr. Brian Jones

RE: Buffered State Waters Assessment Letter Report  
3487 Dogwood Drive, Powder Springs, Georgia

Dear Mr. Jones:

At your request, Ecological Solutions assessed a tract located off of Dogwood Drive in Powder Springs, Cobb County, Georgia in order to assess the presence and location of buffered state waters. Please refer to Figures 1 and 2 for the location and extent of the environmental survey area. The survey area is bordered to the west by Dogwood Drive and to the east, north, and south by existing developed residential lots. The property is located in the jurisdiction of the City of Powder Springs. Figure 2 also depicts the proposed boundaries (as georeferenced from the property survey) should the property be subdivided into two lots.

The predominant habitat within the site is mixed hardwood-pine forest composed primarily of loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), red maple (*Acer rubrum*), Chinese privet (*Ligustrum sinense*) and other invasive species including monkey grass (*Liriope* sp.) and holly-leaved barberry (*Mahonia aquifolia*). The majority of the property consists of a hilltop and associated slopes that drain to the south and east.

Ecological Solutions conducted a state waters assessment in accordance with guidelines provided in the Georgia Environmental Protection Division (EPD) document: *Field Guide for Determining the Presence of State Waters that Require a Buffer*.

Below is a brief description of our findings and potential permitting requirements.

## **Jurisdictional Findings**

### State Waters

State waters are defined as “any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface or subsurface water, natural and artificial, lying within or forming a part of the boundaries of the State which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation, except as may be defined in O.C.G.A. 12-7-17(8). Non-trout buffered state waters require a 25-foot buffer.

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The City of Powder Springs as the Local Issuing Authority (LIA) has adopted additional buffer requirements including a 25-foot no disturbance buffer adjacent to the state buffer and a 25-foot no impervious buffer for a total of 75 feet (50 feet no disturbance as measured from the buffered water bank and the additional 25-foot non-impervious buffer.

The key feature for identifying state waters requiring buffers is “wrested vegetation” along a channel or open water. Non-trout water ephemeral streams do not require buffers.

Powder Springs land development requirements define stream bank as: *The confining cut of a stream channel and is usually identified as the point where the normal stream flow has wrested the vegetation. For non-trout waters, the normal stream flow is any stream flow that consists solely of base flow or consists of both base flow and direct runoff during any period of the year. Base flow results from groundwater that enters the stream channel through the soil. This includes spring flows into streams. Direct runoff is the water entering stream channels promptly after rainfalls or snow melts.*

Identification of the stream bank is important as this demarcates the beginning point for required buffers. Ecological Solutions conducted a site visit on June 16, 2021, following a 48-hour period with no recorded rainfall. It should be noted that approximately 2.08-inches of precipitation had occurred over the prior week to the site visit. Evidence of that rainfall event, which included heavy downpours, would be expected to be observable in the field by indicators such as recent sediment deposits, staining on leaves of adjacent ground cover, scouring within stream channel, and recent sorting of bed materials.

One primary topographic valley feature is located within and adjacent to the property. This feature is located along the southern property boundary. Drainage from Dogwood Drive, adjacent lots, and the undeveloped tract is directed toward this feature through either surface runoff or a culvert that is located under Dogwood Drive. The culvert is located at the southwestern corner of the property. Immediately upgradient of the culvert on the west side of Dogwood Drive is an existing developed residential lot. The area immediately upgradient of the culvert is mowed/maintained with no evidence of a channel or surface flow.

No flow or surface water was observed within or immediately on the down gradient side of the culvert. Approximately 15 to 20 feet down gradient of the culvert, there is no evidence of a channel or stream banks. The area is heavily vegetated and evidence of sheetflow associated with storm events was evident in this area. From this point, what appears to be an excavated feature approximately 2 to 3 feet wide is located along the property boundary. This area appears to hold water due to its excavated condition, but no evidence of surface flow was observed. Vegetation appears to be sparse in this area due to saturated soil conditions as not as a result of surface flow. This reach is then interrupted by both natural and man-made debris. In this interrupted area upland vegetation including monkey grass was observed in what would be the central flow path for this valley. Please note that based on rolling data over a 30-year period according to the Antecedent Precipitation Tool (APT), the field visit was conducted during a period of normal rainfall. The APT analysis is attached.

Approximately 20 to 30 feet below the debris jam and upland vegetation surface flow appears to become concentrated and sorting of bed materials becomes evident. At this point stream banks are defined, and it is Ecological Solutions professional opinion that this demarcates the beginning of the buffered state water. This location is shown on Figure 2.

In support of concluding that the upper reaches of the feature in question is not a buffered state water, a North Carolina Stream Identification form was completed for this area. A minimum score of 19 is required for intermittent streams. The upgradient section scored a 11.5 documenting the absence of typical stream characteristics. In comparison, beginning at the intermittent stream point as shown on Figure 2, the reach scored 28 using the stream identification form documenting the overall transition between the areas and the formation of the buffered state water. The significant contrast in assessment scores, interrupted feature, absence of a stream bank, evidence of surface sheetflow, and presence of upland rooted vegetation supports the conclusion that the upper reach of this feature is a non-buffered state water. Completed stream forms and representative photographs are attached.

## **Permitting Overview**

### **Georgia EPD/State Waters Requiring a Buffer**

It is Ecological Solutions, Inc. professional opinion that identified stream is a state water requiring a buffer. The Georgia Erosion and Sedimentation Act (Act), as amended (Code Section 12-7-6(15)) prohibits land disturbing activities within 25 feet (horizontally measured) of state waters, unless a variance is obtained from the Director of the EPD or the proposed activity is specifically exempted. In many cases, EPD's authority for delineation of state waters is promulgated down to LIA, which administer the permitting process and issue Land Disturbance Permits (LDP's). Stream buffers are measured horizontally from the point where vegetation has been wrested by normal stream flow.

If the LIA concurs that the stream requires a buffer and the project design requires encroachment (with the exception of perpendicular road and/or drainage structures and utility crossings and other specific exemptions) into the state buffers, then a stream buffer variance (SBV) application would be required by the EPD for encroachment within the 25-foot buffer. This application requires avoidance and minimization, alternatives analysis, buffer mitigation, low impact water quality measures, and a public review period. This process takes approximately four to six months for the EPD to reach a variance decision (authorization/denial). Please note that SBV require complete and stamped Erosion, Sedimentation and Pollution Control Plans (ESPCP).

The EPD has mitigation requirements specific to buffer impacts. All buffer variance applicants must comply with three buffer mitigation components:

- *Post-development Total Suspended Solids and Stormwater Runoff Reduction* – Minimum stormwater management standards should be used to intercept the stormwater runoff from the first 1.2" of rainfall and reduce average annual post-development total suspended solids (TSS) loadings by 80%.

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- *Water Quality Protection* – Best management practices (BMPs) should be implemented to address post-construction pollutants other than TSS. An appropriate BMP or “treatment train;” is required to address all pollutants of concern generated on site.
- *Aquatic/Buffer Habitat Protection* – This criterion may be achieved by the purchase of mitigation credits required in the USACE permit if required.

Should the applicant not be able to fulfill the water quality and TSS reduction criteria of the buffer mitigation requirements, additional mitigation credits may be purchased; however, justification to the EPD must be provided as to why the criteria cannot be fulfilled.

Please note that in some instances, the LIA can require additional local stream buffer requirements, including permitting. Powder Springs is the LIA for the survey area. The county adopted a local stream buffer protection ordinance that includes the following stream buffer requirements:

- A minimum 50-foot undisturbed buffer on each side of state waters, as measured from the point of wrested vegetation with an additional 25-foot no impervious buffer.

City code does provide for a variance process that is predicated on documenting hardship associated with the buffer requirements and proposing compensatory mitigation for buffer impacts including a planting plan and the incorporation of other features to protect water quality.

## **Conclusion**

Field investigations identified one buffered state water within the survey area. The identified stream within the survey area appears to be state waters requiring a 25-foot state buffer. If non-exempt activities with the buffers of these features are proposed, a stream buffer variance would be required. Most stream buffer variances require four to six months to obtain. Powder Springs has additional stream buffer requirements including a 50-foot no disturbance buffer and an additional 25-foot non-impervious buffers. It is recommended that coordination be conducted with Powder Springs to verify the applicability of these additional buffer requirements.

Ecological Solutions appreciates the opportunity to assist you with this project and we are available to provide a more detailed permitting assessment following the review of design plans once available. If you have any questions or require any additional information regarding this letter report, please contact me at 404-915-8823.

Sincerely,

ECOLOGICAL SOLUTIONS, INC.

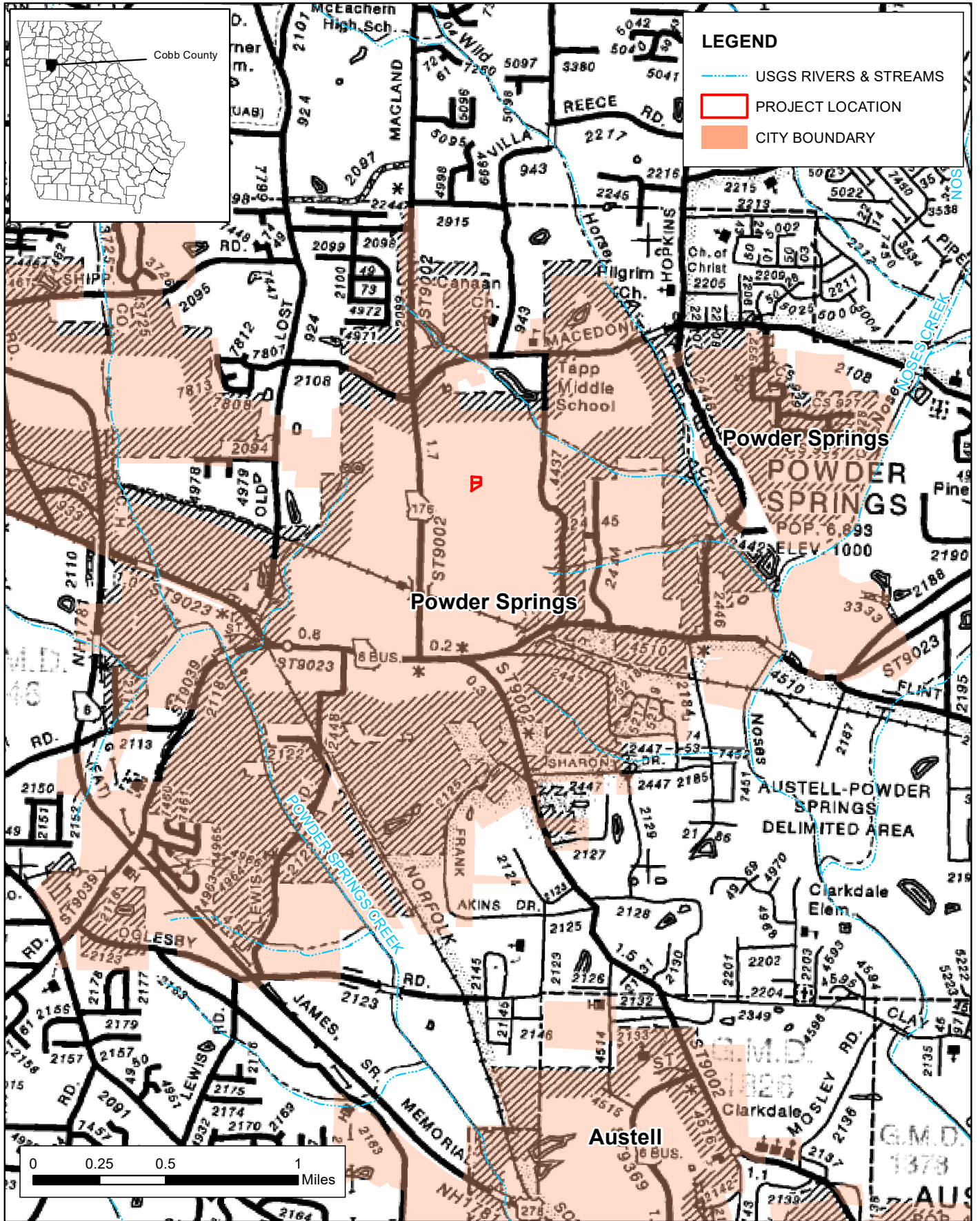


Mark Ballard, PWS

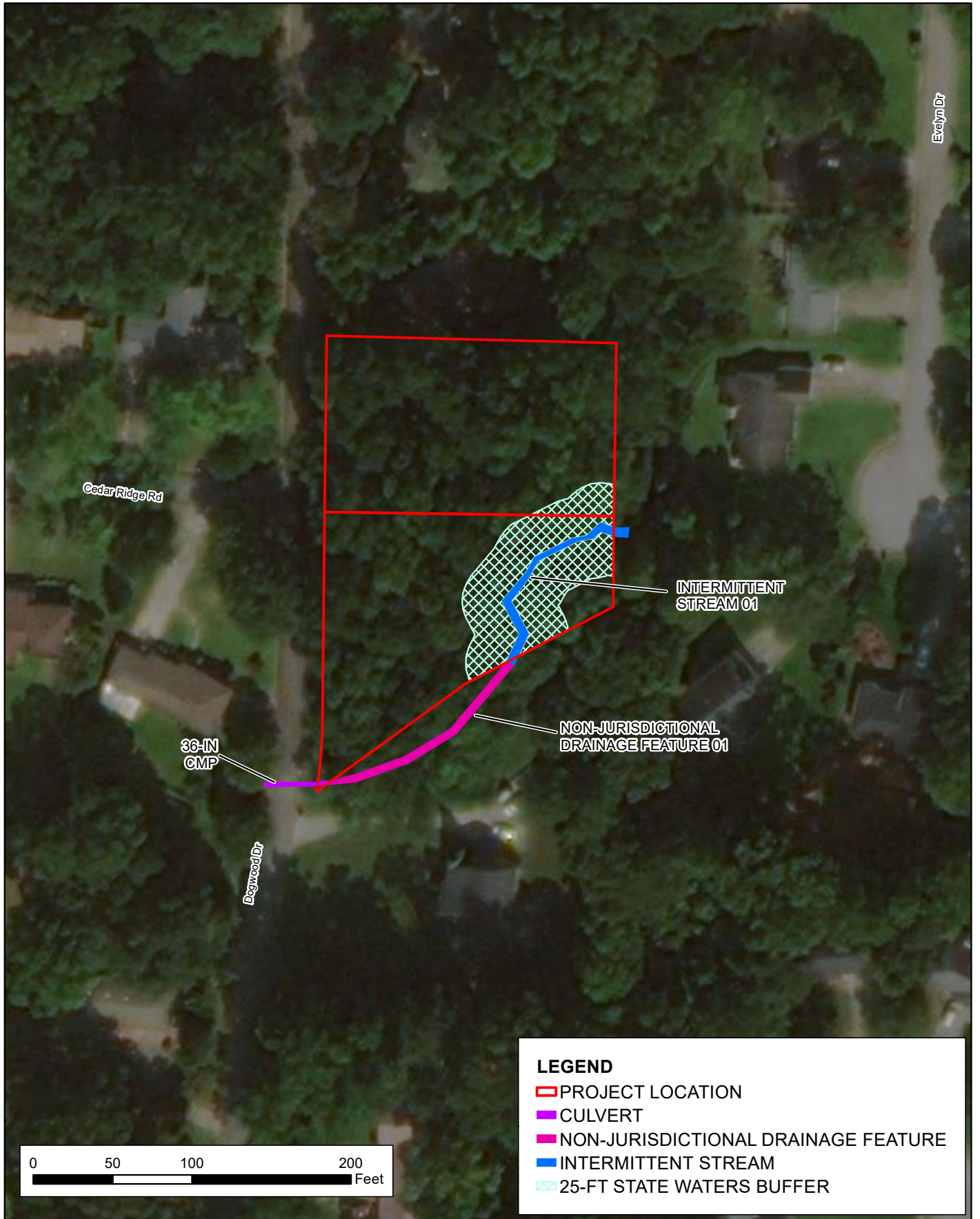
President

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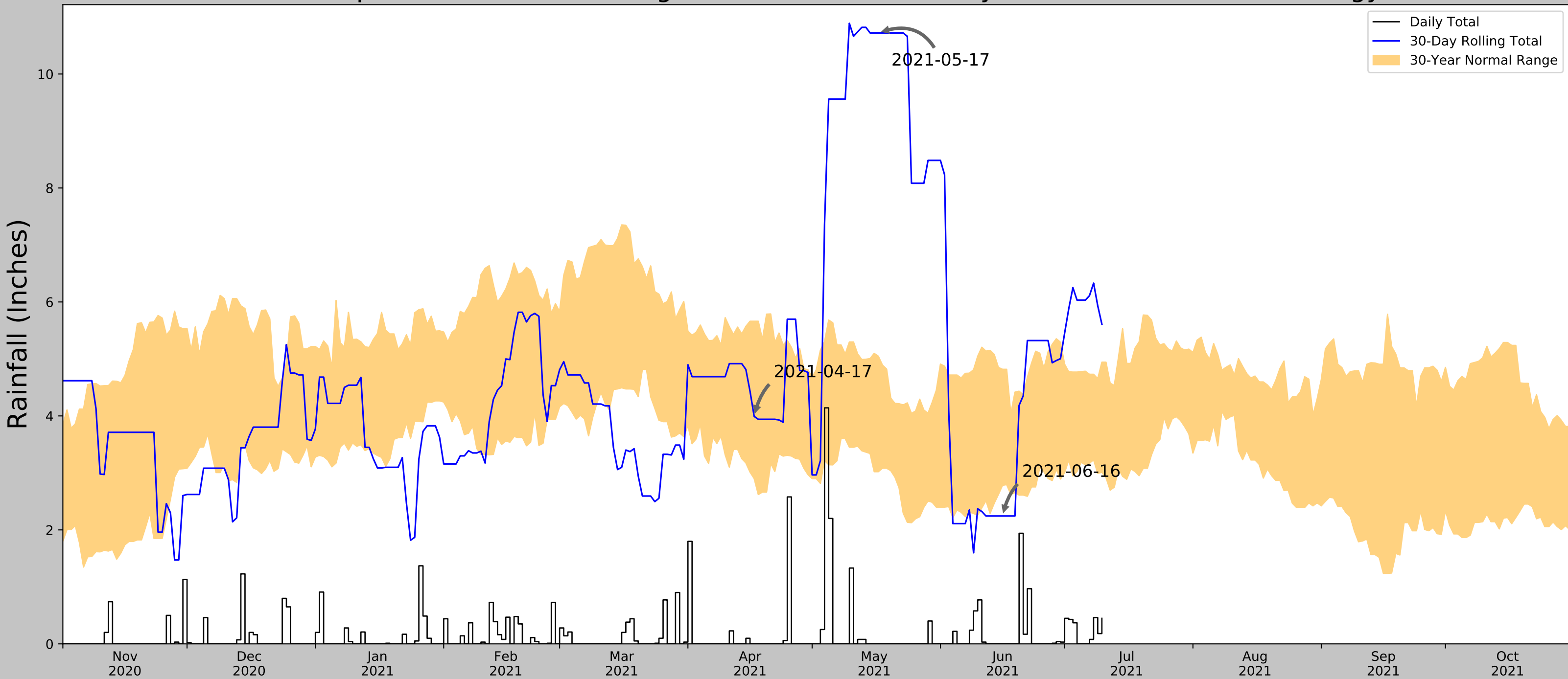
cc: Mr. David Stuart, P.E.



JULY 2021  
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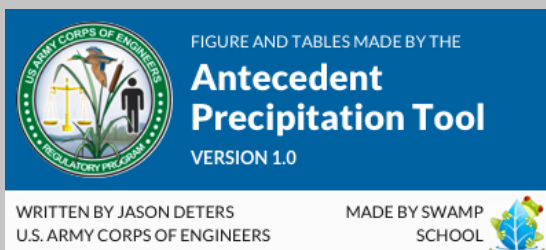
# Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.868828, -84.672776
Observation Date	2021-06-16
Elevation (ft)	957.45
Drought Index (PDSI)	Not available
WebWIMP H <sub>2</sub> O Balance	Dry Season

30 Days Ending	30 <sup>th</sup> %ile (in)	70 <sup>th</sup> %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-06-16	2.782677	4.818504	2.244095	Dry	1	3	3
2021-05-17	3.02126	5.048032	10.720473	Wet	3	2	6
2021-04-17	2.900787	5.661811	3.992126	Normal	2	1	2
Result							Normal Conditions - 11

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
DALLAS 7 NE	33.9983, -84.7511	1027.887	10.009	70.437	5.209	11166	90
DALLAS 7.7 NNE	34.0278, -84.7985	1020.013	3.395	7.874	1.554	2	0
DALLAS 5.3 ENE	33.942, -84.7431	1125.984	3.917	98.097	2.147	1	0
KENNESAW 5.6 SW	33.9566, -84.6717	1043.963	5.385	16.076	2.51	178	0
KENNESAW 3.1 SSW	33.9833, -84.6389	1076.116	6.511	48.229	3.244	4	0
KENNESAW 2.9 NE	34.0565, -84.5853	1069.882	10.311	41.995	5.073	1	0
ALLATOONA DAM 2	34.165, -84.73	975.066	11.581	52.821	5.823	1	0





NC DWQ Stream Identification Form Version 4.11

Date: 6/16/21	Project/Site: Dogwood Dr	Latitude: 33.868828
Evaluator: Mark Bellant	County: Colob	Longitude: -84.67776
Total Points: Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30^*$ 11.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 7)

	Absent	Weak	Moderate	Strong
1 <sup>a</sup> Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

<sup>a</sup>artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2.5)

12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

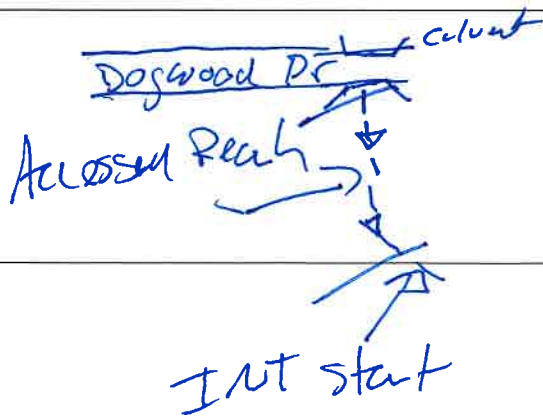
C. Biology (Subtotal = 2)

18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macroinvertebrates (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:



NC DWQ Stream Identification Form Version 4.11

Date: <u>6/16/21</u>	Project/Site: <u>Dogwood Dr</u>	Latitude: <u>33.868828</u>
Evaluator: <u>Mark Ballard</u>	County: <u>Cobb</u>	Longitude: <u>-84.670716</u>
<b>Total Points:</b> <i>Stream is at least intermittent if <math>\geq 19</math> or perennial if <math>\geq 30</math>*</i>	<b>Stream Determination (circle one)</b> Ephemeral Intermittent Perennial	<b>Other</b> e.g. Quad Name:

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A. Geomorphology (Subtotal = 13)

	Absent	Weak	Moderate	Strong
1 <sup>a</sup> Continuity of channel bed and bank	0	1	<u>2</u>	3
2. Sinuosity of channel along thalweg	0	1	<u>2</u>	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	<u>1</u>	2	3
4. Particle size of stream substrate	0	1	<u>2</u>	3
5. Active/relict floodplain	0	1	<u>2</u>	3
6. Depositional bars or benches	0	<u>1</u>	<u>2</u>	3
7. Recent alluvial deposits	0	<u>1</u>	2	3
8. Headcuts	<u>0</u>	1	2	3
9. Grade control	<u>0</u>	0.5	1	1.5
10. Natural valley	0	0.5	<u>1</u>	1.5
11. Second or greater order channel	No = <u>0</u>		Yes = 3	

<sup>a</sup> artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 10)

12. Presence of Baseflow	0	1	<u>2</u>	3
13. Iron oxidizing bacteria	0	1	2	<u>3</u>
14. Leaf litter	1.5	<u>1</u>	0.5	0
15. Sediment on plants or debris	0	<u>0.5</u>	1	1.5
16. Organic debris lines or piles	0	<u>0.5</u>	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = <u>3</u>	

C. Biology (Subtotal = 5)

18. Fibrous roots in streambed	<u>3</u>	2	1	0
19. Rooted upland plants in streambed	3	<u>2</u>	1	0
20. Macroinvertebrates (note diversity and abundance)	<u>0</u>	1	2	3
21. Aquatic Mollusks	<u>0</u>	1	2	3
22. Fish	<u>0</u>	0.5	1	1.5
23. Crayfish	<u>0</u>	0.5	1	1.5
24. Amphibians	<u>0</u>	0.5	1	1.5
25. Algae	<u>0</u>	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = <u>0</u>			

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

